A.D. 1851 . . . . N° 13,484.

SPECIFICATION

OF

JEAN PAUL GAGE.

CHEMICAL COMPOUNDS FOR BANDAGES, WAFERS, &c.

LONDON:
PRINTED BY GEORGE E. EYRE AND WILLIAM SPOTTISWOODE,
PRINTERS TO THE QUEEN'S MOST EXCELLENT MAJESTY:
PUBLISHED AT THE GREAT SEAL PATENT OFFICE,
25, SOUTHAMPTON BUILDINGS, HOLBORN.
Price 4d.
1857.

A.D. 1851 . . . . N° 13,484.

Chemical Compounds for Bandages, Wafers, &c.

GAGE'S SPECIFICATION.

TO ALL TO WHOM THESE PRESENTS MAY COME, I, Jean Paul Gage, of Paris, in the Republic of France, send greeting.

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent under the Great Seal of of the United Kingdom of Great Britain and Ireland, bearing date at Westminster, the Thirty-first day of January, in the fourteenth year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the said Jean Paul Gage, Her especial license, sole privilege and authority, that I, the said Jean Paul Gage, my ex̃ors, adm̃ors, and assigns, and such others as I, the said Jean Paul Gage, my ex̃ors, adm̃ors, and assigns, should at any time agree with, and no others, from time to time and at all times during the term of years therein expressed, should and lawfully might make, use, exercise, and vend, within England, Wales, and the Town of Berwick-upon-Tweed, within the Islands of Jersey, Guernsey, Alderney, Sark, and Man, and also within all Her Majesty's Colonies and Plantations abroad, my Invention of "Improved Chemical Compounds for Tissue, Bandages, Wafers, and also for Surgical Purposes;" in which said Letters Patent there is contained a proviso obliging me, the said Jean Paul Gage, by an instrument in writing under my hand and seal, particularly to describe and ascertain the nature of my said Invention, and in what manner the same is to be performed, and to cause the same to be enrolled in Her Majesty's High Court of Chancery within six calendar months next and immediately after the date of the said in part recited Letters Patent, as in and by the same, reference being thereunto had, will more fully and at large appear.

NOW KNOW YE, that in compliance with the said proviso, I, the said Jean Paul Gage, do hereby declare that the nature of my said Invention, and the manner in which the same is to be performed, are described and ascertained by the following statement thereof, that is to say:—

My Invention consists in chemical compounds formed of vegetable and mineral substances, constituting kinds of vegeto-metallic tissues, serving variously prepared to devellop with great facility the electric fluid, and which may be conveniently applied as bandages on the human body for the treatment of diseases and surgical purposes. The substances which I use for the composition of these different vegeto-metallic tissues are,—First, rosins, resinous gums, such as india rubber, gutta percha, and other similar substances; secondly, metals having the virtue of producing electricity. I employ preferably copper and zinc, but without excluding other metals which have the same quality of generating electricity.

I will now proceed to describe the mode of making these different vegeto-metallic tissues, which I will designate by the Numbers One, Two, Three. I mix with the substances, or I apply on the substances above mentioned, first, metals reduced to a powder more or less fine; secondly, the same metals in lamellated particles; thirdly, the aforesaid metals in the shape of blades of variable length, breadth, and thickness.

Tissue Number One, with metals in a powder.—To manufacture this tissue I mix the copper and zinc reduced to a powder with the vegetable substances above designated, after having purified and liquified them by known processes. The metals in the state of powder enter in this composition in proportions which are varied according to the quantity of electricity which I wish to obtain. When the different substances are thoroughly mixed, I make of them two kinds of preparations; the first consists in reducing in sheets more or less thin by means of a heated roller the said vegeto-metallic mixture, softened by heat and brought to a plastic consistency. The second consists in applying the said mixture on a tissue of silk, cotton, or flax, either by means of a laminating machine, or by any other means. The first preparation is applicable to surgical medical bandages; the second I use to prepare the vegeto-metallic or electro-magnetic tissues Numbers Two and Three, which I will now proceed to describe.

"Tissue Number Two, with metals in lamellated particles."—When I have spread the vegeto-metallic mixture in the manner herein-before described on the tissues of silk, cotton, or flax, I apply on these tissues thus prepared metallic blades of copper and zinc, or other suitable metals, but in such manner as the two metals may be placed in contact, reduced to very small fragments, and by the pressure of a roller or of a heated laminating machine, I enchase the said fragments of metal in the vegeto-metallic layer of the tissue, softened by the heat tisssue Number Three, with the metals in blades or thin sheets of variable length, breadth, and thickness. On the tissue of silk, cotton, or flax, prepared as herein-before described for the tissue Number Two, and cut out in the shape of circular disks, I apply metallic blades (copper, zinc; copper, zinc) of length, breadth, and thickness, which vary, and of a more or less considerable number of pairs, according to the quantity of electricity I wish to obtain. These pairs superposed are arranged cross-ways so as to form a star, and to prevent their separating I bend over one upon the other the extremities of the blades, so that they hook on to one another; this disposition is necessary to avoid a loss of electricity which would unquestionably arise from any other disposition. Afterwards, to prevent the contact of the blades at the centre of the star, which would destroy their power, I isolate each pair by a rundle of any kind of tissue, and when the blades are thus disposed I pass them in the heated laminating machine, and I embody by means of a sufficient pressure the extremities of the said blades in the softened layer of the tissue on which they are applied. To obtain from this preparation the desired effect, I dispose the metallic blades in two different ways. On the one hand I place the copper blade underneath and the zinc blade uppermost; on the other hand I place on the contrary the zinc blade underneath and the copper blade uppermost; and to connect these systems of blades, I attach a ring of copper wire to the first zinc blade on the one hand, and to the first copper blade on the other, and I place in communication these two rings by means of a copper wire covered with silk. With this disposition the vegeto-metallic tissue may work its effect and generate electricity, positive and negative, which doubles its power. To prevent the loss of the generated electricity I enclose the vegeto-metallic disks in bags of cotton, linen, or woollen tissues bordered with an isolating silk ribband, and lined on one side with cotton wadding; to avoid any error each disk has a bag of a different colour. To set in action the vegeto-metallic tissues, Numbers Two and Three, this is how I proceed:—I prepare an acidulated water with three parts of common water and one part of vinegar (the dose of vinegar may be increased if I require a greater dose of electricity); I soak in this mixture the vegeto-metallic disks and the wadding which covers them. Immediately the action of the acid is felt on the metal their oxydation commences, and this oxydation evolves a proportional quantity of electricity to the power of the acid. For the tissue Number One, of which the action must be much weaker, I employ no acid, as when this tissue is applied on the skin there is produced an abundant perspiration, which easily penetrates the tissue and oxydates sufficiently the metals it encloses and produces the electricity I wish to obtain. To facilitate the action of the tissues Numbers Two and Three, I have the care to apply over each disk or piece of the said tissue a cushion composed of a water and air proof cloth thickly lined with wadding and covered with a silken or cotton stuff. The wadding used is for the purpose of creating a considerable degree of heat and a profuse perspiration, and, when it is soaked with perspiration or acidulated water, to encrease the oxydation of the metals, the generating of electricity, and to avoid its evolving uselessly by concentrating it, and thus facilitating its transfusion in the interior of the body.

In short, my last application of my vegeto-metallic compound consists in mixing to the substances prepared for the manufacture of the tissue Number One from five to fifteen per cent. in weight of metal raspings. The paste thus prepared is passed in the laminating machine and reduced to the thickness of ordinary wafers. I afterwards cut out with a common cutter circular disks of the dimensions of wafers, and I use them by heating the surface to be applied on the paper. When the disk thus heated is laid on the fold of the letter, I press on it with a seal, and by the pressure I cause to penetrate in the paper the metallic raspings which form a cramp. I thus obtain a wafer which has the advantage of being much safer than those in general use. I can also obtain a new kind of sealing wax with this paste by making it into rolls or sticks, which can be used as common sealing wax.

In recapitulation, the discoveries which form the object of my Patent can be enumerated as follows, and I claim,—

First, the chemical compositions such as they are herein-before described.

Secondly, the three kinds of vegeto-metallic tissues which result from these chemical compositions herein-before described.

Thirdly, their applications to the treatment of diseases.

Fourthly, the new vegeto-metallic wafers as herein-before described.

In witness whereof, I, the said Jean Paul Gage, have hereunto set my hand and seal, this Twenty-second day of May, in the year of our Lord One thousand eight hundred and fifty-one.

JEAN PAUL (L.S.) GAGE.

Crosby.

AND BE IT REMEMBERED, that on the Twenty-second day of May, in the year of our Lord 1851, the aforesaid Jean Paul Gage came before our said Lady the Queen in Her Chancery, and acknowledged the Specification aforesaid, and all and every thing therein contained and specified, in form above written. And also the Specification aforesaid was stamped according to the tenor of the Statute made for that purpose.

Enrolled the Twenty-second day of May, in the year of our Lord One thousand eight hundred and fifty-one.

LONDON:
Printed by George Edward Eyre and William Spottiswoode,
Printers to the Queen's most Excellent Majesty. 1857.